Ahmed 5
Confirmation No 1585

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

PATENT APPLICATION

Applicant(s):	Walid Ahmed
Case:	5
Serial No :	09/379,675
Filing Date:	August 24, 1999
Group:	2617
Examiner:	Sheila B Smith
Title:	Distributed Dynamic Channel Allocation Technique for Multi-Carrier CDMA Cellular Systems with Mobile Base Stations

---

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby replies to the non-final Office Action dated November 30, 2006, of claims 1 through 26 of the above-identified patent application. A Request to Reinstate the appeal is submitted herewith Appellant's original Appeal Brief in an Appeal of the final rejection of claims 1 through 26 in the above-identified patent application was submitted on July 17, 2006

REAL PARTY IN INTEREST

The present application is assigned to Lucent Technologies, Inc , as evidenced by an assignment recorded on August 24, 1999 in the United States Patent and Trademark Office at Reel 010198, Frame 0629. The assignee, Lucent Technologies, Inc , is the real party in interest

RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences.

STATUS OF CLAIMS

Claims 1 through 26 are presently pending in the above-identified patent application. Claims 1-10, 12-23, 25, and 26 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. (United States Patent Number 6,243,575) in view of Suzuki et al. (United States Patent Number 5,903,843) and claims 14-23, 25, and 26 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al., and further in view of Lee (United States Patent Number 6,246,883). Claims 1, 5, 6, 8, 10-14, 18, 19, 21, and 23-26 are being appealed. Appellant notes that the Examiner cited U.S. Patent Number 6,463,286 in the claim rejections as corresponding to Suzuki et al., and cited U.S. Patent Number 5,803,843 in the Notice of References Cited as corresponding to Suzuki et al. Appellant has assumed that the U.S. Patent Number in the Notice of References Cited is correct.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 is directed to a method for allocating a resource to a mobile station (FIG. 1: 150) in a wireless communications network having at least one mobile base station (FIG. 1: 100), comprising the steps of: collecting measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the wireless communications network, wherein the collected measurements include nominal resource availability information and measured resource availability information (FIG. 1: 400, 500; page 6, lines 15-21; page 7, line 15, to page 8, line 5); processing the collected information to identify a resource for the mobile station (page 12, lines 1-6; page 14, lines 17-27); and assigning the resource to the mobile station (page 12, lines 1-6)

Independent claim 6 is directed to a system for allocating a resource to a mobile station (FIG 1: 150) in a wireless communications network having at least one mobile base station (FIG 1: 100), said system comprising: a memory (FIG 1: 130) for storing computer readable code; and a processor (FIG 1: 120) operatively coupled to said memory (FIG. 1: 130), said processor (FIG. 1: 120) configured to: collect measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the wireless communications network, wherein the collected measurements include nominal resource availability information and measured resource availability information (FIG 1: 400, 500; page 6, lines 15-21; page 7, line 15, to page 8, line 5); process the collected information to identify a resource for the mobile station (page 12, lines 1-6; page 14, lines 17-27); and assign the resource to the mobile station (page 12, lines 1-6).

In one exemplary embodiment, the nominal resource availability is a nominal capacity value for each band on the network less the number of users on the band (page 6, lines 14-21)

Independent claim 10 is directed to a method for allocating a resource to a mobile station (FIG 1: 150) in a wireless communications network having a plurality of base stations including at least one mobile base station (FIG. 1: 100), comprising the steps of: collecting measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the wireless communications network, wherein the collected measurements include received power measurements from neighboring base stations (page 8, lines 6-11); processing the collected information to identify a resource for the mobile station (page 12, lines 1-6; page 14, lines 17-27); and assigning the resource to the mobile station (page 12, lines 1-6)

Independent claim 12 is directed to a system for allocating a resource to a mobile station (FIG 1: 150) in a wireless communications network having a plurality of base stations including at least one mobile base station (FIG 1: 100), said system comprising: a memory (FIG 1: 130) for storing computer readable code; and a processor (FIG 1: 120) operatively coupled to said memory (FIG 1: 130), said processor (FIG 1: 120) configured to: collect measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the

wireless communications network, wherein the collected measurements include received power measurements from neighboring base stations (page 8, lines 6-11); process the collected information to identify a resource for the mobile station (page 12, lines 1-6; page 14, lines 17-27); and assign the resource to the mobile station (page 12, lines 1-6).

In another exemplary embodiment, received power measurements provide an indication of the distance to a neighboring base station (page 5, line 28, to page 9, line 21)

Independent claim 14 is directed to a method for allocating a resource to a mobile station (FIG. 1: 150) in a wireless communications network having a plurality of base stations including at least one mobile base station (FIG. 1: 100), comprising the steps of: collecting measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the wireless communications network, wherein the collected measurements include predicted new load information (page 11, lines 17-23); processing the collected information to identify a resource for the mobile station (page 12, lines 1-6; page 14, lines 17-27); and assigning the resource to the mobile station (page 12, lines 1-6).

Independent claim 19 is directed to a system for allocating a resource to a mobile station (FIG. 1: 150) in a wireless communications network having a plurality of base stations including at least one mobile base station (FIG. 1: 100), said system comprising: a memory (FIG. 1: 130) for storing computer readable code; and a processor (FIG. 1: 120) operatively coupled to said memory (FIG. 1: 130), said processor (FIG. 1: 120) configured to: collect measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the wireless communications network, wherein the collected measurements include predicted new load information (page 11, lines 17-23); process the collected information to identify a resource for the mobile station (page 12, lines 1-6; page 14, lines 17-27); and assign the resource to the mobile station (page 12, lines 1-6).

In another exemplary embodiment, the predicted new load, $\mu_{l\,l}^{D}$, is computed as follows:

$$\mu_{l\,l}^{D} = p_{l\,l}^{D} \sum_{k=1}^{K} \lambda_{k}^{D},$$

where $p_{l\,i}^{D}$ is a probability of assigning a resource to a band and λ_{k}^{D} are a number of users over a downlink band (page 9, lines 15-21).

Independent claim 23 is directed to a method for allocating a resource to a mobile station (FIG. 1: 150) in a wireless communications network having a plurality of base stations including at least one mobile base station (FIG. 1: 100), comprising the steps of: collecting measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the wireless communications network; processing the collected information to identify a resource for the mobile station such that the resource allocation minimizes a call drop rate; and assigning the resource to the mobile station (page 12, lines 1-6).

Independent claim 25 is directed to a system for allocating a resource to a mobile station (FIG. 1: 150) in a wireless communications network having a plurality of base stations including at least one mobile base station (FIG. 1: 100), said system comprising: collecting measurements of interference (page 6, line 23, to page 7, line 13) and load (page 7, line 15, to page 8, line 5) in the wireless communications network; processing the collected information to identify a resource for the mobile station such that the resource allocation minimizes a call drop rate; and assigning the resource to the mobile station (page 12, lines 1-6).

In one exemplary embodiment, a call drop rate ensures that a resource will not be assigned to the mobile station (FIG. 1: 150) if a likelihood that allocating the resource to the mobile station will cause another mobile station to be dropped exceeds a predefined threshold (page 12, lines 16-28; page 13, lines 9-20; and page 13, line 26, to page 14, line 8).

STATEMENT OF GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-10, 12-23, 25, and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al. and claims 14-23, 25, and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al., and further in view of Lee.

ARGUMENT

Independent Claims 1, 6, 10, 12, 14, 19, 23 and 25

Independent claims 1, 6, 10, 12, 14, 19, 23, and 25 were rejected under 35 U S C §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al., and claims 14, 19, 23, and 25 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al., and further in view of Lee

Regarding claims 1, 10, 12, and 25, the Examiner acknowledges that Ohyama fails to specifically disclose wherein said collected measurements include nominal resource availability information and measured resource availability information, but asserts that Suzuki discloses a traffic channel assignment based on traffic density and signal quality, and discloses collected measurements that include nominal resource availability information (which reads on col. 11, lines 4-16). Regarding claim 6, the Examiner asserts that Suzuki discloses collecting measurements of interference and load in said wireless communications network (which reads on col. 11, lines 4-16) Regarding claims 14, 19, and 23, the Examiner asserts that Ohyama discloses processing said collected information to identify a resource for said mobile station; and assigning said resource to said mobile station (col 12, lines 5-8).

In the text cited by the Examiner, Suzuki teaches that,

> in the foregoing embodiment, the received *signal strength level of interference wave is measured for all channels* selectable as traffic channels each time a request for available traffic channel assignment is generated. However, a group of channels forming a part of available channels may be made an object of measurement of the received signal strength level of interference wave and assignment of traffic channels in order to shorten a time required for the assignment of traffic channel The determination of the channel group to be made the object can be realized, for example, in such a manner that a group of channels having a high frequency of traffic channel assignment are extracted on the previous record at each base station and the result of extraction is identified by the database 230.
> (Col. 11, lines 4-17; emphasis added.)

Appellant could find no disclosure or suggestion in Suzuki of *availability information*. Independent claims 1 and 14 require collecting measurements of interference and load in said wireless communications network, wherein said collected measurements include *nominal*

resource availability information and *measured resource availability information* Appellant also notes that "nominal" is defined as a term used to describe functional behavior as being within expected norms, or as designed (see, The IEEE Standard Dictionary of Electrical and Electronics Terms, Sixth Edition) Thus, *nominal* resource availability information is resource availability information that describes the *expected norms*; *for example*, the nominal resource availability information may relate to the available resources in *terms of the specified capacity*, as would be apparent to a person of ordinary skill in the art (see, page 6, lines 14-21, of the originally filed specification). Suzuki does ***not*** disclose or suggest ***collecting measurements*** that include ***nominal*** *resource availability information and* ***measured*** *resource availability information,* as would be apparent to a person of ordinary skill in the art.

Appellant also notes that Suzuki does ***not*** disclose or suggest that collected measurements include *received power measurements from* ***neighboring*** *base stations*, does not disclose or suggest ***predicted new load*** information, and does not disclose or suggest that the resource allocation ***minimizes a call drop rate***.

Independent claims 6 and 19 require collecting measurements of interference and load in said wireless communications network, wherein said collected measurements include received power measurements from *neighboring base stations*. Independent claims 10 and 23 require collecting measurements of interference and load in said wireless communications network, wherein said collected measurements include *predicted new load information* Independent claims 12 and 25 require processing said collected information to identify a resource for said mobile station such that said resource allocation *minimizes a call drop rate*.

Appellant also notes that Lee does ***not*** disclose or suggest that collected measurements include load measurements, nominal resource availability information, measured resource availability information, or predicted new load information and does ***not*** disclose or suggest that collected measurements include received power measurements from neighboring base stations

Thus, Ohyama et al., Suzuki et al., and Lee, alone or in combination, do not disclose or suggest collecting measurements of interference and load in said wireless

communications network, wherein said collected measurements include nominal resource availability information and measured resource availability information, as required by independent claims 1 and 14, do not disclose or suggest collecting measurements of interference and load in said wireless communications network, wherein said collected measurements include received power measurements from neighboring base stations, as required by independent claims 6 and 19, do not disclose or suggest collecting measurements of interference and load in said wireless communications network, wherein said collected measurements include predicted new load information, as required by independent claims 10 and 23, and do not disclose or suggest processing said collected information to identify a resource for said mobile station such that said resource allocation minimizes a call drop rate, as required by independent claims 12 and 25.

Claims 5 and 18

Claims 5 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al. and claim 18 is rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al., and further in view of Lee. Regarding claim 18, the Examiner asserts that Ohyama discloses that a nominal resource availability is a nominal capacity value for each band on said network less the number of users on said band (col. 12, lines 29-34)

In the text cited by the Examiner, Ohyama teaches that

> a channel switching operation for a call of a subscriber terminal that is present in one of the mobile radio zones of the mobile base station is classified into a channel switching operation between existing radio zones, and a channel switching operation between the mobile radio zones of the mobile base station
> (Col. 12, lines 29-34.)

Contrary to the Examiner's assertion, Appellant could find no disclosure or suggestion by Ohyama that a nominal resource availability is a nominal capacity value for each band on said network less the number of users on said band. Claims 5 and 18 require wherein said nominal resource availability is a nominal capacity value for each band on said network less the number of users on said band.

Thus, Ohyama et al , Suzuki et al , and Lee, alone or in any combination, do not disclose or suggest wherein said nominal resource availability is a nominal capacity value for each band on said network less the number of users on said band, as required by claims 5 and 18

Claims 8 and 21

Claims 8 and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al. and claim 21 is rejected under 35 U.S.C §103(a) as being unpatentable over Ohyama et al in view of Suzuki et al , and further in view of Lee. Regarding claim 21, the Examiner asserts that Ohyama discloses that received power measurements provide an indication of the distance to a neighboring base station (col. 12, lines 29-34)

In the text cited by the Examiner, Ohyama teaches

> a channel switching operation for a call of a subscriber terminal that is present in one of the mobile radio zones of the mobile base station is classified into a channel switching operation between existing radio zones, and a channel switching operation between the mobile radio zones of the mobile base station.
> (Col. 12, lines 29-34)

Contrary to the Examiner's assertion, Appellant could find no disclosure or suggestion by Ohyama that received power measurements provide an indication of the distance to a neighboring base station. Claims 8 and 21 require wherein said received power measurements provide an indication of the distance to a neighboring base station.

Thus, Ohyama et al , Suzuki et al., and Lee, alone or in any combination, do not disclose or suggest wherein said received power measurements provide an indication of the distance to a neighboring base station, as required by claims 8 and 21.

Claims 11 and 24

The Examiner did not reject claims 11 and 14. Appellant could also find no disclosure or suggestion by Ohyama, Suzuki et al., or Lee that said predicted new load, $\mu_{l\,i}^{D}$, is computed as follows:

$$\mu_{l\,i}^{D} = p_{l\,i}^{D} \sum_{k=1}^{K} \lambda_{k}^{D},$$

where $p^D_{l\,i}$ is a probability of assigning a resource to a band and λ^D_k are a number of users over a downlink band.

Thus, Ohyama et al , Suzuki et al , and Lee, alone or in any combination, do not disclose or suggest wherein said predicted new load, $\mu^D_{l\,i}$, is computed as follows:

$$\mu^D_{l\,i} = p^D_{l\,i} \sum_{k=1}^{K} \lambda^D_k \quad ,$$

where $p^D_{l\,i}$ is a probability of assigning a resource to a band and λ^D_k are a number of users over a downlink band, as required by claims 11 and 24.

<u>Claims 13 and 26</u>

Dependent claims 13 and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al., and claim 26 is rejected under 35 U S C §103(a) as being unpatentable over Ohyama et al. in view of Suzuki et al., and further in view of Lee. The Examiner did not provide any specific comments regarding the limitations of claims 13 and 26.

Appellant could find no disclosure or suggestion by Ohyama, Suzuki et al., or Lee that a call drop rate ensures that a resource will not be assigned to the mobile station if a likelihood that allocating the resource to the mobile station will cause another mobile station to be dropped exceeds a predefined threshold. Claims 13 and 26 require wherein said call drop rate ensures that a resource will not be assigned to said mobile station if a likelihood that allocating said resource to said mobile station will cause another mobile station to be dropped exceeds a predefined threshold

Thus, Ohyama et al , Suzuki et al., and Lee, alone or in any combination, do not disclose or suggest wherein said call drop rate ensures that a resource will not be assigned to said mobile station if a likelihood that allocating said resource to said mobile station will cause another mobile station to be dropped exceeds a predefined threshold, as required by claims 13 and 26.

Conclusion

The rejections of the cited claims under section 103 in view of Ohyama et al., Suzuki et al., and Lee, alone or in any combination, are therefore believed to be improper and should be withdrawn. The remaining rejected dependent claims are believed allowable for at least the reasons identified above with respect to the independent claims.

The attention of the Examiner and the Appeal Board to this matter is appreciated

Respectfully,

Kevin M Mason

Date: March 29, 2007

Kevin M. Mason
Attorney for Applicant(s)
Reg. No. 36,597
Ryan, Mason & Lewis, LLP
1300 Post Road, Suite 205
Fairfield, CT 06824
(203) 255-6560

CLAIMS APPENDIX

1. A method for allocating a resource to a mobile station in a wireless communications network having at least one mobile base station, said method comprising the steps of:

~~collecting measurements of interference and load in said wireless communications~~ network, wherein said collected measurements include nominal resource availability information and measured resource availability information;

processing said collected information to identify a resource for said mobile station; and

assigning said resource to said mobile station

2. The method of claim 1, wherein said measurements are collected from both said mobile station and said base stations.

3 The method of claim 1, wherein said nominal resource availability information provides a measure of the load on said wireless communications network.

4. The method of claim 1, wherein said measured resource availability information provides a measure of the interference on said wireless communications network

5. The method of claim 1, wherein said nominal resource availability is a nominal capacity value for each band on said network less the number of users on said band.

6. A method for allocating a resource to a mobile station in a wireless communications network having a plurality of base stations including at least one mobile base station, said method comprising the steps of:

collecting measurements of interference and load in said wireless communications network, wherein said collected measurements include received power measurements from

neighboring base stations;

processing said collected information to identify a resource for said mobile station; and

assigning said resource to said mobile station

7 The method of claim 6, wherein said power measurements are received from said neighboring base stations on a beacon channel.

8. The method of claim 6, wherein said received power measurements provide an indication of the distance to a neighboring base station.

9 The method of claim 6, wherein said measurements are collected from both said mobile station and said base stations.

10. A method for allocating a resource to a mobile station in a wireless communications network having a plurality of base stations including at least one mobile base station, said method comprising the steps of:

collecting measurements of interference and load in said wireless communications network, wherein said collected measurements include predicted new load information;

processing said collected information to identify a resource for said mobile station; and

assigning said resource to said mobile station.

11. The method of claim 10, wherein said predicted new load, μ_{li}^{D}, is computed as follows:

$$\mu_{li}^{D} = p_{li}^{D} \sum_{k=1}^{K} \lambda_{k}^{D},$$

where $p_{l\,i}^{D}$ is a probability of assigning a resource to a band and λ_{k}^{D} are a number of users over a downlink band

12. A method for allocating a resource to a mobile station in a wireless ~~communications network having a plurality of base stations including at least one mobile base~~ station, said method comprising the steps of:

collecting measurements of interference and load in said wireless communications network;

processing said collected information to identify a resource for said mobile station such that said resource allocation minimizes a call drop rate; and

assigning said resource to said mobile station.

13. The method of claim 12, wherein said call drop rate ensures that a resource will not be assigned to said mobile station if a likelihood that allocating said resource to said mobile station will cause another mobile station to be dropped exceeds a predefined threshold.

14. A system for allocating a resource to a mobile station in a wireless communications network having at least one mobile base station, said system comprising:

a memory for storing computer readable code; and

a processor operatively coupled to said memory, said processor configured to:

collect measurements of interference and load in said wireless communications network, wherein said collected measurements include nominal resource availability information and measured resource availability information;

process said collected information to identify a resource for said mobile station; and

assign said resource to said mobile station.

15. The system of claim 14, wherein said measurements are collected from both said mobile station and said base stations

16. The system of claim 14, wherein said nominal resource availability information provides a measure of the load on said wireless communications network.

17. The system of claim 14, wherein said measured resource availability information provides a measure of the interference on said wireless communications network

18. The system of claim 14, wherein said nominal resource availability is a nominal capacity value for each band on said network less the number of users on said band.

19. A system for allocating a resource to a mobile station in a wireless communications network having a plurality of base stations including at least one mobile base station, said system comprising:

a memory for storing computer readable code; and

a processor operatively coupled to said memory, said processor configured to:

collect measurements of interference and load in said wireless communications network, wherein said collected measurements include received power measurements from neighboring base stations;

process said collected information to identify a resource for said mobile station; and

assign said resource to said mobile station.

20. The system of claim 19, wherein said power measurements are received from said neighboring base stations on a beacon channel.

21. The system of claim 19, wherein said received power measurements provide an indication of the distance to a neighboring base station.

22. The system of claim 19, wherein said measurements are collected from both said mobile station and said base stations.

23. A system for allocating a resource to a mobile station in a wireless communications network having a plurality of base stations including at least one mobile base station, said system comprising:

a memory for storing computer readable code; and

a processor operatively coupled to said memory, said processor configured to:

collect measurements of interference and load in said wireless communications network, wherein said collected measurements include predicted new load information;

process said collected information to identify a resource for said mobile station; and

assign said resource to said mobile station.

24. The system of claim 23, wherein said predicted new load, $\mu_{l\,i}^{D}$, is computed as follows:

$$\mu_{l\,i}^{D} = p_{l\,i}^{D} \sum_{k=1}^{K} \lambda_{k}^{D},$$

where $p_{l\,i}^{D}$ is a probability of assigning a resource to a band and λ_{k}^{D} are a number of users over a downlink band

25. A system for allocating a resource to a mobile station in a wireless communications network having a plurality of base stations including at least one mobile base station, said system comprising:

collecting measurements of interference and load in said wireless communications network;

processing said collected information to identify a resource for said mobile station such that said resource allocation minimizes a call drop rate; and

assigning said resource to said mobile station.

26. The system of claim 25, wherein said call drop rate ensures that a resource will not be assigned to said mobile station if a likelihood that allocating said resource to said mobile station will cause another mobile station to be dropped exceeds a predefined threshold

EVIDENCE APPENDIX

There is no evidence submitted pursuant to § 1.130, 1.131, or 1.132 or entered by the Examiner and relied upon by appellant

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 CFR 41 37